



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Jae-Hyun Ryou et al.

Serial No.: 10/607,758

Examiner: unknown

Filing Date: June 27, 2003

Group Art: unknown

For: VCSEL HAVING THERMAL MANAGEMENT

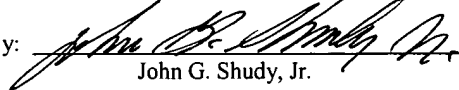
Docket No.: H0004788 (1139.1138101)

TRANSMITTAL SHEET

Assistant Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450


CERTIFICATE UNDER 37 C.F.R. 1.8: I hereby certify that this correspondence is being deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to the: Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450, on this 25th day of November, 2003.

By:


John G. Shudy, Jr.

We are transmitting herewith the attached:

- ☒ Information Disclosure Statement, Form PTO-1449 and 248 cited references.
☒ Please charge any deficiencies or credit any overpayment in the enclosed fees to Deposit Account No. 50-0413.


John G. Shudy, Jr., Reg. No. 31,214
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INFORMATION DISCLOSURE STATEMENT (37 C.F.R. §1.97(b))

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By: 

John G. Shudy, Jr.

Dear Sir:

With regard to the above-identified application, the items of information listed on the enclosed Form 1449 are brought to the attention of the Examiner.

This statement should be considered because it is submitted before the mailing date of a first Office Action on-the-merits. Accordingly, no fee is due for consideration of the items listed on the enclosed Form 1449.

In accordance with 37 C.F. R. §1.98(a)(2), a copy of each US patent or other information listed on the enclosed Form 1449 is provided.

No representation is intended to be made hereby that any of the cited references establishes, by itself or in combination with other information, a prima facie case of unpatentability of any claim of the present case.

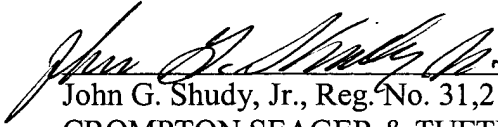
Consideration of the items listed is respectfully requested. Pursuant to the provisions of M.P.E.P. 609, it is requested the Examiner return a copy of the attached Form 1449, marked as being considered and initialed by the Examiner, to the undersigned with the next official communication.

Respectfully submitted,

Jae-Hyun Ryou et al.

By their attorney,

Date: 11/25/03



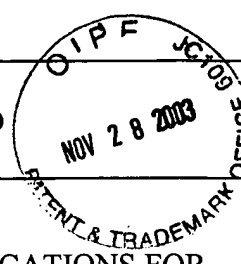
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Page 1 of 13 FORM PTO-1449	Atty. Docket No.: H0004788 (1139.1138101)		Serial No.: 10/607,758
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LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT		Filing Date: June 27, 2003	Group Art: unknown

U.S. PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
	US2001/0004414 A1	06/21/2001	Kuhn et al.			
	US2002/0154675 A1	10/24/2002	Deng et al.			
	US2003/0072526 A1	04/17/2003	Kathman et al.			
	4,317,085	02/23/1982	Brunham et al.			
	4,466,694	08/21/1984	MacDonald			
	4,660,207	04/21/1987	Svilans			
	4,675,058	06/23/1987	Plaster			
	4,784,722	11/15/1988	Liau et al.			
	4,885,592	12/05/1989	Kofol et al.			
	4,901,327	02/13/1990	Bradley			
	4,943,970	07/24/1990	Bradley			
	4,956,844	09/11/1990	Goodhue et al.			
	5,031,187	07/09/1991	Orenstein et al.			
	5,052,016	09/24/1991	Mahbobzadeh			
	5,056,098	10/08/1991	Anthony et al.			
	5,062,115	10/29/1991	Thornton			
	5,068,869	11/26/1991	Wang et al.			
	5,079,774	01/07/1992	Mendez et al.			
	5,115,442	05/19/1992	Lee et al.			
	5,117,469	05/26/1992	Cheung et al.			
	5,140,605	08/18/1992	Paoli et al.			
	5,157,537	10/20/1992	Rosenblatt et al.			
	5,158,908	10/27/1992	Blonder et al.			
	5,212,706	05/18/1993	Jain			

FORM PTO-1449



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Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
	5,216,263	06/01/1993	Paoli			
	5,216,680	06/01/1993	Magnusson et al.			
	5,237,581	08/17/1993	Asada et al.			
	5,245,622	09/14/1993	Jewell et al.			
	5,258,990	11/02/1993	Olbright et al.			
	5,262,360	11/16/1993	Holonyak, Jr. et al.			
	5,285,466	02/08/1994	Tabatabaie			
	5,293,392	03/08/1994	Shieh et al.			
	5,317,170	05/31/1994	Paoli			
	5,317,587	05/31/1994	Ackley et al.			
	5,325,386	06/28/1994	Jewell et al.			
	5,331,654	07/19/1994	Jewell et al.			
	5,337,074	08/09/1994	Thornton			
	5,337,183	08/09/1994	Rosenblatt et al.			
	5,349,599	09/20/1994	Larkins			
	5,351,256	09/27/1994	Schneider et al.			
	5,359,447	10/25/1994	Hahn et al.			
	5,359,618	10/25/1994	Lebby et al.			
	5,363,397	11/08/1994	Collins et al.			
	5,373,520	12/13/1994	Shoji et al.			
	5,373,522	12/13/1994	Holonyak, Jr., et al.			
	5,376,580	12/27/1994	Kish et al.			
	5,386,426	01/31/1995	Stephens			
	5,390,209	02/14/1995	Vakhshoori			
	5,396,508	03/17/1995	Bour et al.			

**FORM PTO-1449**

Page 3 of 13

Atty. Docket No.:

H0004788
(1139.1138101)

Serial No.:

10/607,758

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unknown

Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
	5,404,373	04/04/1995	Cheng			
	5,412,678	05/02/1995	Treat et al.			
	5,412,680	05/02/1995	Swirhum et al.			
	5,416,044	05/16/1995	Chino et al.			
	5,428,634	06/27/1995	Bryan et al.			
	5,438,584	08/01/1995	Paoli et al.			
	5,446,754	08/29/1995	Jewell et al.			
	5,465,263	11/07/1995	Bour et al.			
	5,475,701	12/12/1995	Hibbs-Brenner			
	5,493,577	02/1996	Choquette et al.			
	5,497,390	03/05/1996	Tanaka et al.			
	5,513,202	04/30/1996	Kobayashi et al.			
	5,530,715	06/25/1996	Shieh et al.			
	5,555,255	09/10/1996	Kock et al.			
	5,557,626	09/17/1996	Grodinski et al.			
	5,561,683	10/01/1996	Kwon			
	5,567,980	10/22/1996	Holonyak, Jr. et al.			
	5,568,498	10/22/1996	Nilsson			
	5,568,499	10/22/1996	Lear			
	5,574,738	11/12/1996	Morgan			
	5,581,571	12/1996	Holonyak, Jr. et al.			
	5,586,131	12/17/1996	Ono et al.			
	5,590,145	12/31/1996	Nitta			
	5,598,300	01/28/1997	Magnusson et al.			
	5,606,572	02/25/1997	Swirhun et al.			



FORM PTO-1449

Page 4 of 13

Atty. Docket No.:

H0004788
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unknown

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	5,625,729	04/29/1997	Brown			
	5,642,376	06/24/1997	Olbright et al.			
	5,645,462	07/08/1997	Banno et al.			
	5,646,978	07/08/1997	Kem et al.			
	5,648,978	07/15/1997	Sakata			
	5,679,963	10/21/1997	Klem et al.			
	5,692,083	11/25/1997	Bennett			
	5,696,023	12/09/1997	Holonyak, Jr., et al.			
	5,699,373	12/16/1997	Uchida et al.			
	5,712,188	01/27/1998	Chu et al.			
	5,726,805	03/10/1998	Kaushik, et al.			
	5,727,013	03/10/1988	Botez et al.			
	5,727,014	03/10/1988	Wang et al.			
	5,774,487	06/30/1998	Morgan			
	5,778,018	07/07/1998	Yoshikawa et al.			
	5,781,575	07/14/1998	Nilsson			
	5,784,399	07/21/1998	Sun			
	4,790,733	08/04/1998	Smith et al.			
	5,805,624	09/08/1998	Yang et al.			
	5,818,066	10/06/1998	Duboz			
	5,828,684	10/27/1998	Van de Walle			
	5,838,705	11/17/1998	Shieh et al.			
	5,838,715	11/17/1998	Corzine et al.			
	5,892,784	04/06/1999	Tan et al.			
	5,892,787	04/06/1999	Tan et al.			



FORM PTO-1449

Page 5 of 13

Atty. Docket No.:

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Examiner Initial	Document No.	Date	Name	Class	Sub Class	Filing Date If Appropriate
	5,896,408	04/20/1999	Corzine et al.			
	5,901,166	05/04/1999	Nitta et al.			
	5,903,588	05/1999	Guenter et al.			
	5,903,589	05/1999	Jewell			
	5,903,590	05/11/1999	Hadley et al.			
	5,908,408	06/1999	McGary et al.			
	5,936,266	08/10/1999	Holonyak, Jr. et al.			
	5,940,422	08/17/1999	Johnson			
	5,953,362	09/14/1999	Pamulapati et al.			
	5,978,401	11/02/1999	Morgan			
	5,978,408	11/1999	Thornton			
	5,995,531	11/30/1999	Gaw et al.			
	6,002,705	12/14/1999	Thornton			
	6,008,675	12/28/1999	Handa			
	6,014,395	01/11/2000	Jewell			
	6,043,104	03/28/2000	Uchida et al.			
	6,046,065	04/04/2000	Goldstein et al.			
	6,055,262	04/25/2000	Cox et al.			
	6,052,398	04/18/2003	Brillouet et al.			
	6,060,743	05/09/2000	Sugiyama et al.			
	6,078,601	06/20/2000	Smith			
	6,086,263	07/11/2000	Selli et al.			
	6,133,590	10/17/2000	Ashley et al.			
	6,144,682	11/07/2000	Sun			
	6,154,480	11/28/2000	Magnusson et al.			

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FORM PTO-1449

Page 6 of 13

Atty. Docket No.:
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LIST OF PATENTS AND PUBLICATIONS FOR
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	6,185,241	02/06/2001	Sun			
	6,191,890	02/20/2001	Baets et al			
	6,208,681 B1	03/27/2001	Thorton			
	6,212,312	04/03/2001	Grann et al			
	6,238,944 B1	05/29/2001	Floyd			
	6,269,109 B1	07/31/2001	Jewell			
	6,297,068	10/02/2001	Thornton			
	6,302,596	10/16/2001	Cohen et al.			
	6,339,496	01/15/2002	Koley et al.			
	6,369,403	04/09/2002	Holonyak, Jr.			
	6,372,533 B2	04/16/2002	Jayaraman et al.			
	6,392,257	05/21/2002	Ramdani et al.			
	6,410,941	06/25/2002	Taylor et al.			
	6,411,638	06/25/2002	Johnson et al.			
	6,427,066	07/30/2002	Grube			
	6,455,879	09/24/2002	Ashley et al.			
	6,459,709	10/01/2002	Lo et al.			
	6,459,713	10/01/2002	Jewell			
	6,462,360	10/08/2002	Higgins, Jr. et al.			
	6,472,694	10/29/2002	Wilson et al.			
	6,477,285	11/05/2002	Shanley			
	6,487,230	11/26/2002	Boucart et al.			
	6,487,231	11/26/2002	Boucart et al.			
	6,490,311	12/03/2002	Boucart et al.			
	6,493,371	12/10/2002	Boucart et al.			



FORM PTO-1449

Page 7 of 13

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	6,493,372	12/10/2002	Boucart et al.			
	6,493,373	12/10/2002	Boucart et al.			
	6,496,621	12/17/2002	Kathman et al.			
	6,498,358	12/24/2002	Lach et al.			
	6,501,973	12/31/2002	Foley et al.			
	6,515,308	02/04/2003	Kneissl et al.			
	6,535,541	03/18/2003	Boucart et al.			
	6,536,959	03/25/2003	Kuhn et al.			
	6,542,531	04/01/2003	Sirbu et al.			
	6,567,435	05/20/2003	Scott et al.			

FOREIGN PATENT DOCUMENTS

Examiner Initial	Document No.	Date	Country	Translation Yes No
	✓ JP 60123084	01/07/1985	JP	Abstract
	✓ EP 0288184 A2	10/26/1988	EP	
	✓ JP 02054981	02/23/1990	JP	Abstract
	✓ JP 5299779	11/12/1993	JP	Abstract
	✓ DE 4240706 A1	06/09/1994	DE	Abstract
	✓ EP 0776076 A1	05/28/1997	EP	Abstract
	✓ WO 98/57402	12/17/1998	PCT	

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	✓	Banwell et al., "VCSE Laser Transmitters for Parallel Data Links", <u>IEEE Journal of Quantum Electronics</u> , Vol. 29, No. 2, February 1993, pp. 635-644.
	✓	Bowers et al., "Fused Vertical Cavity Lasers With Oxide Aperture", Final report for MICRO



Page 8 of 13 FORM PTO-1449 LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	Atty. Docket No.: H0004788 (1139.1138101)	Serial No.: 10/607,758
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✓	project 96-042, Industrial Sponsor: Hewlett Packard, 4 pages, 1996-97.
✓	Catchmark et al., "High Temperature CW Operation of Vertical Cavity Top Surface-Emitting Lasers", CLEO 1993, p. 138.
✓	Chemla et al., "Nonlinear Optical Properties of Semiconductor Quantum Wells", <u>Optical Nonlinearities and Instabilities in Semiconductors</u> , Academic Press, Inc., Copyright 1988, pp. 83-120.
✓	Choe, et al., "Lateral oxidation of AIAs layers at elevated water vapour pressure using a closed-chamber system," Letter to the Editor, Semiconductor Science Technology, 15, pp. L35-L38, August 2000.
✓	Choa et al., "High-Speed Modulation of Vertical-Cavity Surface-Emitting Lasers", <u>IEEE Photonics Technology Letter</u> , Vol. 3, No. 8, August 1991, pp. 697-699.
✓	Choquette et al., "High Single Mode Operation from Hybrid Ion Implanted/Selectively Oxidized VCSELs", 200 IEEE 17th International Semiconductor Laser Conference, Monterrey, CA pages 59-60.
✓	Choquette et al., "Lithographically-Defined Gain Apertures Within Selectively Oxidized VCSELs", paper CtuL6, Conference on Lasers and Electro-Optics, San Francisco, California (2000).
✓	Choquette, et al., "VCSELs in information systems: 10Gbps ⁻¹ oxide VCSELs for data communication", Optics In Information Systems, Vol. 12, No. 1, page 5, SPIE International Technical Group Newsletter, April 2001.
✓	Chua, et al., "Low-Threshold 1.57- μ m VC-SEL's Using Strain-Compensated Quantum Wells and Oxide/Metal Backmirror," IEEE Photonics Technology Letters, Vol 7, No. 5, pp. 444-446, May 1995.
✓	Chua, et al., "Planar Laterally Oxidized Vertical-Cavity Lasers for Low-Threshold High-Density Top-Surface-Emitting Arrays," IEEE Photonics Technology Letters, Vol. 9, No. 8, pp. 1060-1062, August 1997.
✓	Cox, J. A., et al., "Guided Mode Grating Resonant Filters for VCSEL Applications", <u>Proceedings of the SPIE</u> , The International Society for Optical Engineering, Diffractive and Holographic Device Technologies and Applications V, San Jose, California, January 28-29, 1998, Vol. 3291, pages 70-71.
✓	Farrier, Robert G., "Parametric control for wafer fabrication: New CIM techniques for data analysis," Solid State Technology, pp. 99-105, September 1997.
✓	Fushimi, et al., "Degradation Mechanism in Carbon-doped GaAs Minority-carrier Injection Devices," 34 th Annual IRPS Proceedings, Dallas, TX., April 29-May 2, 1996, 8 pages.
✓	G. G. Ortiz, et al., "Monolithic Integration of In _{0.2} Ga _{0.8} As Vertical Cavity Surface-Emitting Lasers with Resonance-Enhanced Quantum Well Photodetectors", <u>Electronics Letters</u> , Vol. 32, No. 13, June 20, 1996, pp. 1205-1207.
✓	G. Shtengel et al., "High-Speed Vertical-Cavity Surface-Emitting Lasers", <u>Photon. Tech. Lett.</u> , Vol.

FORM PTO-1449



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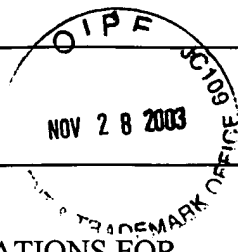
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June 27, 2003

Group Art:

unknown

✓	5, No. 12, pp. 1359-1361 (December 1993).
✓	Geib, et al., "Comparison of Fabrication Approaches for Selectively Oxidized VCSEL Arrays," Proceedings of SPIE, Vol. 3946, pages 36-40, 2000.
✓	Graf, Rudolph, <u>Modern Dictionary of Electronics</u> , 6 th ed., Indiana: Howard W. Sams & Company, 1984, p. 694.
✓	Gunter et al., "Reliability of Proton-Implanted VCSELs for Data Communications", Invited paper, SPIE, Vol. 2683, OE LASE 96; Photonics West: Fabrication, Testing and Reliability of Semiconductor Lasers, (SPIE, Bellingham, WA 1996).
✓	Gunter, et al., "Commercialization of Honeywell's VCSEL technology: further developments," Proceedings of the SPIE, Vol. 4286, GSPIE 2000, 14 pages.
✓	Hadley et al., "High-Power Single Mode Operation from Hybrid Ion Implanted/Selectively Oxidized VCSELs", 13th Annual Meeting IEEE Lasers and Electro-Optics Society 2000 Annual Meeting (LEOS 2000), Rio Grande, Puerto Rico, pages 804-805.
✓	Hawthorne, et al., "Reliability Study of 850 nm VCSELs for Data Communications," IEEE, pages 1-11, May 1996.
✓	Herrick, et al., "Highly reliable oxide VCSELs manufactured at HP/Agilent Technologies," Invited Paper, Proceedings of SPIE Vol. 3946, pp. 14-19, 2000.
✓	Hibbs-Brenner et al., "Performance, Uniformity and Yield of 850nm VCSELs Deposited by MOVPE", <u>IEEE Phot. Tech. Lett.</u> , Vol. 8, No. 1, pp. 7-9, January 1996.
✓	Hideaki Saito, et al., "Controlling polarization of quantum-dot surface-emitting lasers by using structurally anisotropic self-assembled quantum dots," American Institute of Physics, Appl. Phys. Lett. 71 (5), pages 590-592, August 4, 1997.
✓	Hornak et al., "Low-Temperature (10K-300K) Characterization of MOVPE-Grown Vertical-Cavity Surface-Emitting Lasers", <u>Photon. Tech. Lett.</u> , Vol. 7, No. 10, pp. 1110-1112, October 1995.
✓	Huffaker et al., "Lasing Characteristics of Low Threshold Microcavity Layers Using Half-Wave Spacer Layers and Lateral Index Confinement", <u>Appl. Phys. Lett.</u> , Vol. 66, No. 14, pp.1723-1725, April 3, 1995.
✓	Jewell et al., "Surface Emitting Microlasers for Photonic Switching & Intership Connections", <u>Optical Engineering</u> , Vol. 29, No. 3, pp. 210-214, March 1990.
✓	Jiang et al., "High-Frequency Polarization Self-Modulation in Vertical-Cavity Surface-Emitting Lasers", <u>Appl. Phys. Letters</u> , Vol. 63, No. 26, December 27, 1993, pp. 2545-2547.
✓	K.L. Lear et al., "Selectively Oxidized Vertical Cavity Surface-Emitting Lasers with 50% Power Conversion Efficiency", <u>Elec. Lett.</u> , Vol. 31, No. 3 pp. 208-209, February 2, 1995.
✓	Kash, et al., "Recombination in GaAs at the AlAs oxide-GaAs interface," Applied Physics Letters, Vol. 67, No.14, pp. 2022-2024, October 2, 1995.
/	Kishino et al., "Resonant Cavity-Enhanced (RCE) Photodetectors", <u>IEEE Journal of Quantum</u>



Page 10 of 13	FORM PTO-1449	Atty. Docket No.: H0004788 (1139.1138101)	Serial No.: 10/607,758
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LIST OF PATENTS AND PUBLICATIONS FOR
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.	<u>Electronics</u> , Vol. 27, No. 8, pp. 2025-2034.
✓	Koley B., et al., "Dependence of lateral oxidation rate on thickness of AIAs layer of interest as a current aperture in vertical-cavity surface-emitting laser structures", <u>Journal of Applied Physics</u> , Vol. 84, No. 1, pages 600-605, July 1, 1998.
✓	Kuchibhotla et al., "Low-Voltage High Gain Resonant Cavity Avalanche Photodiode", <u>IEEE Phototronics Technology Letters</u> , Vol. 3, No. 4, pp. 354-356.
✓	Lai et al., "Design of a Tunable GaAs/AlGaAs Multiple-Quantum-Well Resonant Cavity Photodetector", <u>IEEE Journal of Quantum Electronics</u> , Vol. 30, No. 1, pp. 108-114.
✓	Lee et al., "Top-Surface Emitting GaAs Four-Quantum-Well Lasers Emitting at 0-85 um", <u>Electronics Letters</u> , Vol. 24, No. 11, May 24, 1990, pp. 710-711.
✓	Lehman et al., "High Frequency Modulation Characteristics of Hybrid Dielectric/AlGaAs Mirror Singlemode VCSELs", <u>Electronic Letters</u> , vol. 31, No. 15, July 20, 1995, pp. 1251-1252.
/	Maeda, et al., "Enhanced Glide of Dislocations in GaAs Single Crystals by Electron Beam Irradiation," <u>Japanese Journal of Applied Physics</u> , Vol. 20, No. 3, pages L165-L168, March 1981.
✓	Magnusson, "Integration of Guided-Mode Resonance Filters and VCSELs", <u>Electo-Optics Research Center, Department of Electrical Engineering, University of Texas at Arlington</u> , May 6, 1997.
/	Martinsson et al., "Transverse Mode Selection in Large-Area Oxide-Confined Vertical-Cavity Surface-Emitting Lasers Using a Shallow Surface Relief", <u>IEEE Photon. Technol. Lett.</u> , 11(12), 1536-1538 (1999).
✓	Miller et al., "Optical Bistability Due to Increasing Absorption", <u>Optics Letters</u> , Vol. 9, No. 5, May 1984, pp. 162-164.
✓	Min Soo Park and Byung Tae Ahn, "Polarization control of vertical-cavity surface-emitting lasers by electro-optic birefringence," <u>Applied Physics Letter</u> , Vol. 76, No. 7, pages 813-815, February 14, 2000.
✓	Morgan et al., "200 C, 96-nm Wavelength Range, Continuous-Wave Lasing from Unbonded GaAs MOVPE-Grown Vertical Cavity Surface-Emitting Lasers", <u>IEEE Photonics Technology Letters</u> , Vol. 7, No. 5, May 1995, pp. 441-443.
/	Morgan et al., "High-Power Coherently Coupled 8x8 Vertical Cavity Surface Emitting Laser Array", <u>Appl. Phys Letters</u> , Vol 61, No. 10, September 7, 1992, pp. 1160-1162.
✓	Morgan et al., "Hybrid Dielectric/AlGaAs Mirror Spatially Filtered Vertical Cavity Top-Surface Emitting Laser", <u>Appl. Phys. Letters</u> , Vol. 66, No. 10, March 6, 1995, pp. 1157-1159.
/	Morgan et al., "Novel Hibrid-DBR Single-Mode Controlled GaAs Top-Emitting VCSEL with Record Low Voltage", 2 pages, dated prior to December 29, 2000.
/	Morgan et al., "One Watt Vertical Cavity Surface Emitting Laser", <u>Electron. Lett.</u> , Vol. 29, No. 2, pp. 206-207, January 21, 1993
/	Morgan et al., "Producible GaAs-based MOVPE-Grown Vertical-Cavity Top-Surface Emitting

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Atty. Docket No.:

H0004788
(1139.1138101)

Serial No.:

10/607,758

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION
DISCLOSURE STATEMENT

Applicant: Jae-Hyun Ryou et al.

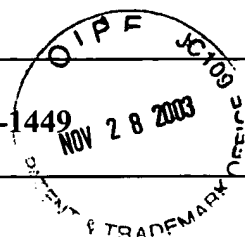
Filing Date:

June 27, 2003

Group Art:

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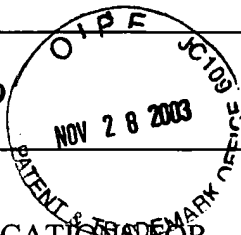
✓	Lasers with Record Performance", <u>Elec. Lett.</u> , Vol. 31, No. 6, pp. 462-464, March 16, 1995.
✓	Morgan et al., "Progress and Properties of High-Power Coherent Vertical Cavity Surface Emitting Laser Arrays", <u>SPIE</u> , Vol. 1850, January 1993, pp. 100-108.
✓	Morgan et al., "Progress in Planarized Vertical Cavity Surface Emitting Laser Devices and Arrays", <u>SPIE</u> , Vol. 1562, July 1991, pp. 149-159.
✓	Morgan et al., "Spatial-Filtered Vertical-Cavity Top Surface-Emitting Lasers", <u>CLEO</u> , 1993, pp. 138-139.
✓	Morgan et al., "Submilliamp, Low-Resistance, Continuous-Wave, Single-Mode GaAs Planar Vertical-Cavity Surface Emitting Lasers", Honeywell Technology Center, June 6, 1995.
✓	Morgan et al., "Transverse Mode Control of Vertical-Cavity Top-Surface Emitting Lasers", <u>IEEE Photonics Technology Letters</u> , Vol. 4, No. 4, April 1993, pp. 374-377.
✓	Morgan et al., "Vertical-cavity surface-emitting laser arrays", Invited Paper, <u>SPIE</u> , Vol. 2398, February 6, 1995, pp. 65-93.
✓	Morgan et al., "Vertical-cavity surface emitting lasers come of age, Invited paper, <u>SPIE</u> , Vol. 2683, 0-8194-2057, March 1996, pages 18-29.
✓	Morgan, "High-Performance, Producibile Vertical Cavity Lasers for Optical Interconnects", <u>High Speed Electronics and Systems</u> , Vol. 5, No. 4, December 1994, pp. 65-95.
✓	Naone R.L., et al., "Tapered-apertures for high-efficiency miniature VCSELs", <u>LEOS newsletter</u> , Vol. 13, No. 4, pages 1-5, August 1999.
✓	Nugent et al., "Self-Pulsations in Vertical-Cavity Surface-Emitting Lasers", <u>Electronic Letters</u> , Vol. 31, No. 1, January 5, 1995, pp. 43-44.
✓	Oh, T. H. et al., "Single-Mode Operation in Antiguided Vertical-Cavity Surface-Emitting Laser Using a Low-Temperature Grown AlGaAs Dielectric Aperture", <u>IEEE Photon. Technol. Lett.</u> , 10(8), 1064-1066 (1998).
✓	Osinski, et al., "Temperature and Thickness Dependence of Steam Oxidation of AIAs in Cylindrical Mesa Structure," <u>IEEE Photonics Technology Letters</u> , Vol. 13, No. 7, pages 687-689, July 2001.
✓	Peck, D. Stewart, "Comprehensive Model for Humidity Testing Correlation, <u>IEEE/IRPS</u> , pp. 44-50, 1986.
✓	Ries, et al., "Visible-spectrum ($\lambda = 650\text{nm}$) photopumped (pulsed, 300 K) laser operation of a vertical-cavity AIAs-AlGaAs/InAlP-InGaP quantum well heterostructure utilizing native oxide mirrors," <u>Applied Physics Letters</u> , Vol. 67, No. 8, pages 1107-1109, August 21, 1995.
✓	S.S. Wang and R. Magnusson, "Multilayer Waveguide-Grating Filters", <u>Appl. Opt.</u> , Vol. 34, No. 14, pp. 2414-20, 1995.
✓	S.S. Wang and R. Magnusson, "Theory and Applications of Guided-Mode Resonance Filters", <u>Appl. Opt.</u> , Vol. 32, No. 14, pp. 2606-13, 1993.



Page 12 of 13 FORM PTO-1449	Atty. Docket No.: H0004788 (1139.1138101)	Serial No.: 10/607,758
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	Applicant: Jae-Hyun Ryou et al.	
	Filing Date: June 27, 2003	Group Art: unknown

✓	Sah, et al., "Carrier Generation and Recombination in <i>P-N</i> Junctions and <i>P-N</i> Junction Characteristics," Proceedings of the IRE, pages 1228-1243, September, 1957.
✓	Schubert, "Resonant Cavity Light-Emitting Diode", <u>Appl. Phys. Lett.</u> , Vol. 60, No. 8, pp. 921-923, February 24, 1992.
✓	Shi, et al., "Photoluminescence study of hydrogenated aluminum oxide-semiconductor interface," Applied Physics Letters, Vol. 70, No. 10, pages 1293-1295, March 10, 1997.
✓	Smith, R.E. et al., "Polarization-Sensitive Subwavelength Antireflection Surfaces on a Semiconductor for 975 NM, <u>Optics Letters</u> , Vol. 21, No. 15, August 1, 1996, pp. 1201-1203.
✓	Spicer, et al., "The Unified Model For Schottky Barrier Formation and MOS Interface States in 3-5 Compounds," Applications of Surface Science, Vol. 9, pages 83-01, 1981.
✓	Suning Tang et al., "Design Limitations of Highly Parallel Free-Space Optical Interconnects Based on Arrays of Vertical Cavity Surface-Emitting Laser Diodes, Microlenses, and Photodetectors", Journal of Lightwave Technology, Vol. 12, No. 11, November 1, 1994, pp. 1971-1975.
✓	T. Mukaihara, "Polarization Control of Vertical-cavity Surface-Emitting Lasers by a Birefringent Metal/Semiconductor Polarizer Terminating a Distributed Bragg Reflector," Tokyo Institute of Technology, Precision and Intelligence Laboratory, pages 183-184.
✓	Tao, Andrea, "Wet-Oxidation of Digitally Alloyed AlGaAs," National Nanofabrication Users Network, Research Experience for Undergraduates 2000, 2 pages.
✓	Tautm, et al., "Commercialization of Honeywell's VCSEL Technology, Published in Proceedings fo the SPIE, Vol. 3946, SPI, 2000, 12 pages.
✓	Tshikazu Mukaihara, et al., "A Novel Birefringent Distributed Bragg Reflector Using a Metal/Dielectric Polarizer for Polarization Control of Surface-Emitting Lasers," Japan J. Appl. Phys. Vol. 33 (1994) pages L227-L229, Part 2, No. 2B, February 15, 1994.
✓	Tu, Li-Wei et al., "Transparent conductive metal-oxide contacts in vertical-injection top-emitting quantum well lasers", Appl. Phys. Lett. 58 (8) 25 February 1991, pages 790-792.
/	Wieder, H.H., "Fermi level and surface barrier of Ga _x In _{1-x} As alloys," Applied Physics Letters, Vol. 38, No. 3, pages 170-171, February 1, 1981.
✓	Wipiejewski, et al., "VCSELs for datacom applications," Invited Paper, Part of the SPIE Conference on Vertical-Cavity Surface-Emitting Lasers III, San Jose, California, SPIE Vol. 3627, pages 14-22, January 1999.
/	Y. M. Yang et al., "Ultralow Threshold Current Vertical Cavity Surface Emitting Lasers Obtained with Selective Oxidation", <u>Elect. Lett.</u> , Vol. 31, No. 11, pp. 886-888, May 25, 1995.
/	Yablonovitch et al., "Photonic Bandgap Structures", <u>J. Opt. Soc. Am. B.</u> , Vol. 10, No. 2, pp. 283-295, February 1993.
/	Young et al., "Enhanced Performance of Offset-Gain High Barrier Vertical-Cavity Surface-Emitting Lasers", <u>IEEE J. Quantum Electron.</u> , Vol. 29, No. 6, pp. 2013-2022, June 1993.

Page 13 of 13 FORM PTO-1449	Atty. Docket No.: H0004788 (1139.1138101)	Serial No.: 10/607,758
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	Applicant: Jae-Hyun Ryou et al.	
	Filing Date: June 27, 2003	Group Art: unknown



	✓	U.S. Patent Application Serial No. 09/751,422, filed December 29, 2000, entitled "Resonant Reflector for Use with Optoelectronic Devices".
	✓	U.S. Patent Application Serial No. 09/751,423, filed December 29, 2000, entitled "Spatially Modulated Reflector for an Optoelectronic Device".

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EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.